# Review of the 1983 Commercial Abalone Fishery in British Columbia

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by

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## ABSTRACT

K.T. Bates. 1985. Review of the 1983 commercial abalone fishery in British Columbia. Can. MS Rep. Fish. Aquat. Sci.1826:25p.

The 1983 commercial abalone (Haliotis kamtschatkana) fishery in British Columbia harvested 58,813 kg (129,660 lb). Most of the catch was taken in Area 2E (35% of total B.C. catch), with lesser amounts in Area 1 (21%), Area 20 (13%) and Area 6 (13%). Abalone fishing effort by Statistical Area varied widely and averaged 130 kg/diver day. This is slightly below the levels reported in 1980, 1981 and 1982, and below the levels recorded during the period 1977 to 1979. The year 1983 was the second year that the reported total catch did not reach the allowable coast-wide catch.


Key words: northern abalone, fishery, management regulations.


## RÉSUMÉ

K.T. Bates. 1985. Review of the 1983 commercial abalone fishery in British Columbia. Can. MS Rep. Fish. Aquat. Sci.1826:25p.

La récolte de la pêche commerciale des ormeaux (Haliotis kamtschatkana) en 1983 en Colombie-Britannique a été de 58 813 kg (129 600 lb). La plus grande partie des prises provenaient de la zone 2E (35% des prises totales en C.-B.), des quantités moins importantes ayant été enregistrées dans la zone 1 (21%), la zone 20 (13%) et la zone 6 (13%). L'effort de pêche des ormeaux par zone statistique a varié considérablement et a été en moyenne de 130 kg/plongeur/jour. Ce chiffre représente une légère baisse par rapport aux niveaux signalés en 1980, 1981 et 1982, et est inférieur aux niveaux enregistrés entre 1977 et 1979. L'année 1983 est la deuxième ou le total des primes rapportées n'a pas atteint le total des prises admissibles pour l'ensemble de la côte.


Mots-clés: ormeau du nord, pêche, réglementation en matière de gestion.

## INTRODUCTION

This report reviews the 1983 abalone fishery in British Columbia; it describes management strategies, total catch, catch per area, and effort per vessel and day. The present catches and fishing effort are compared with earlier years. Three previous reports (Fedorenko and Sprout 1982; Sprout 1983; Bates 1984) reviewed the abalone fishery for 1952 to 1980, 1981 and 1982 respectively. The present report is the fourth in a series of publications by the Department of Fisheries and Oceans (DFO) aimed at providing an annual summary of the abalone fishery.

## SOURCE OF DATA

Data were obtained from fishermen's harvest logs (Appendix 1) which must be filled out and submitted on a monthly basis or following the completion of each abalone trip. The harvest logs are considered to provide a more accurate estimate of total catch than published data from sales slips, and for this reason, some discrepancy is expected between catch data from this report and from Fisheries Statistics, B.C., which relies only on the sales slip system. Because the logs are considered confidential, only general fishing locations, rather than specific sites, will be discussed.

Landings are expressed in kilograms (kg), or occasionally in pounds (lb) for comparative purposes.

## REGULATIONS

Each year the DFO representatives meet with abalone fishermen following the end of the season to review the past year's fishery and to discuss fishing plans for the upcoming season. Following this meeting, each licence holder is issued fishing guidelines which detail the allowable catch, season and other appropriate regulations (Appendix 2).

In 1983, the allowable coast-wide catch was set at 70,760 kg (156,000 lb), which was a decrease of 23,587 kg from 1982. This decrease in allowable catch was in reponse to anecdotal information that the abalone stocks were down and to information from the Fisheries Research Branch that some of the biological rates used to evaluate the stocks have been found to be lower than previously believed. At the same time, a committment was made by DFO to do field studies to analyze this information. As in previous years, the allowable catch was distributed equally to each licence holder so that each abalone licence was assigned 2,722 kg (6,000 lb). The season began on January 15, 1983 and ended on December 15, 1983. Procedures for reporting of catches are discussed in a later section.

Other major actions continued for the 1983 fishery were as follows:

1. A subcommittee, comprised of five licence holders, was continued to recommend changes in abalone licence policy to DFO and to advise on biological programs and activities.

2. A glaze allowance of 7% on frozen abalone was continued for the 1983 season. This allowance was initiated in 1981 and allows the fishermen to deduct 7% of the total weight of the frozen abalone to arrive at a net weight. Thus, the maximum allowable quota per licence, if delivering frozen glazed abalone, was 2,912 kg (6,420 lb).

## LICENCING

The limited entry of 26 licences and the $200.00 licence fee were continued and, as in previous years, the licence was issued to the individual. Although personal abalone licences continued to be non-transferable, licence holders were allowed to place their licences on any vessel, whether they were the vessel owner or not. By following this procedure, it was possible to place more than one licence on a single vessel. A minimum abalone catch was not necessary to be eligible for licence renewal in 1983 and there was no restriction on the number of divers used, but each diver had to have a valid personal commercial fishing licence.

Prior to fishing, each abalone licence holder was requested to advise the appropriate District Officer of their entering the district, and all abalone catches had to be inspected by a Fishery Officer prior to unloading and the catches validated prior to leaving for the next trip. Again, as in past years, log sheets accompanied by maps showing exact harvest locations, had to be filled daily and, after completion of the trip, forwarded to the Management Biologist coordinating the fishery. Sales slips had to be submitted for all abalone harvested.

Changes in the licencing regulations allowed DFO to set specific conditions to the licence. One of these conditions was the ability by DFO to specify "the authorized area and location of the commercial fishing" (Pacific Fishery Registration and Licencing Regulations, 1983). With this regulation, DFO included the closed areas as a condition of the licence (Appendix 3).

## COMMERCIAL ABALONE CLOSURES

Commercial abalone closures have been implemented in a number of areas along the B.C. coast since 1971. Generally, closures were implemented in order to conserve overharvested or low productivity areas, and to preserve traditional native food fishery areas and important recreational sites. Areas closed, reasons for closure and implementation dates are given in Table 1.

After requests from fishermen, the Skincuttle Inlet/ Carpenter Bay closure was rescinded. This was the first reopening of a closed area in the history of this fishery.

## CHARTER PAYMENT

There have been repeated requests from the Abalone Harvesters Association to reopen Cumshewa Inlet to commercial abalone fishing. Since there was concern by DFO that a reopening could not be managed equitably and that the stocks in the area may not have recovered sufficiently to support a full fishery, it was decided to use Cumshewa Inlet abalone for the payment of chartering an abalone fisherman to assist DFO in abalone surveys.

Rob Harrington harvested 2,346 kg of glazed abalone from this area in payment for charter work done during the 1983 survey. These abalone were harvested from the Fairburn Shoals area over a period of seven days.

## DISTRIBUTION OF ANNUAL LANDINGS BY AREA AND VESSEL

In 1983, a total of 58,812 kg (129,660 lb) of abalone were harvested in B.C. This compares with a high of 481,373 kg (1,061,250 lb) landed in 1977 and an average of 64,767 kg (142,787 lb) reported landed during the period 1952 to 1982 (Table 2). Most of the catch was taken in Area 2E (35% of the total B.C. catch), with lesser amounts in Area 1 (21%), Area 20 (13%) and Area 6 (13%) (Fig. 3, Table 3). The remaining 18% of the catch were taken in small amounts from Areas 4, 5, 6, 7, 8, 9 and 12. The 1983 catch distribution by region showed dramatic shifts from the 1982 season. The Queen Charlotte Islands (Areas 1, 2W, 2E) supported 56% of the total coast catch in 1983 compared to 33% in 1982. This was accompanied by a decrease in the Central Coast (Areas 6, 7, 8, 9, 10) from 35% in 1982 to 19% in 1983 (Appendix 4).

Distribution of catch within regions showed a slight shift in the Queen Charlotte Islands and the South Coast. The Queen Charlotte Islands showed a balancing of catch between Area 1

Table 1. Commercial abalone area closures, dates implemented and reasons for closures, B.C., 1983[a].

| | Area[b] | Date closure implemented | Comments |
|---|---|---|---|
| Area 1 | Masset Inlet, Masset Sound, McIntyre Bay | 1977 | -recreational harvest<br>-native harvest |
| Area 1 | Virago Sound | 1978 | -low stock levels<br>-recreational harvest<br>-native harvest |
| Area 2E | Juan Perez Sound | 1973 | -traditional native harvest<br>-recreational harvest, in conjunction with Hotspring Island |
| Area 2E | Cumshewa Inlet | 1977 | -low levels of old individuals; few juveniles and sublegals; possibility of "recruitment" overfishing |
| Area 2E | Skincuttle Inlet, Carpenter Bay | 1979 | -low stock levels |
| Area 2E | Skincuttle Inlet, Carpenter Bay | 1982 | -closure rescinded |
| Area 2W | Rennell Sound | 1977 | -recreational harvest; one of two areas in 2W that is accessible by road from the east coast |
| Area 2W | Skidegate Channel | 1977 | -traditional native harvest<br>-recreational harvest; same as Rennell Sound |
| Area 2W | Tasu Sound | 1977 | -recreational harvest<br>-surveys in this area by DFO in June 1981 have indicated very low abundance of legal-sized abalone; area has been closed to recreational harvesting since 1980 |
| Areas 4 & 5 | Parts of Porcher Island, North end Banks Island | 1977 | -native harvest (Kitkala Band)<br>-recreational harvest |
| Areas 4 & 5 | Stephens Island, Banks Island closure extended southward | 1980 | -native harvest (Kitkatla Band)<br>-recreational harvest |

Table 1 (cont'd).

| | Area[b] | Date closure implemented | Comments |
|---|---|---|---|
| Area 6 | Campania Island, Gil Island, Laredo Channel | 1977 | -native harvest (Klemtu, Bella Bella Bands)<br>-recreational harvest<br>-concerns by Fishery Officers that recreational divers are overfishing the resource<br>-closure was modified in 1981 |
| Area 6 | Portions of Campania Island reopened | 1981 | -closure was changed to exclude Squally Channel |
| Area 7 | Inside Price Island, Swindle Island, Princess Royal Island, Don Peninsula | 1977 | -native harvest (Klemtu, Bella Bella Bands) |
| Area 8 | North end of Calvert Island | 1977 | -low stock abundance (Fishery Officer estimates) |
| Areas 9 & 10 | Rivers and Smith inlets | 1978 | -low stock abundance |
| Areas 12-19 | Lower Johnstone Strait, Strait of Georgia, Strait of Juan de Fuca | 1971 | -low stock abundance<br>-recreational harvest thought to meet or exceed what stocks can sustain already |
| Area 21 | Southwest coast of Vancouver Island | 1978 | -concern by Fishery Officers for low stock abundance |
| Areas 23 & 24 | Barkley Sound and Clayoquot Sound | 1978 | -these areas were fished heavily during 1970-1973; stocks have not recovered sufficiently to permit reopening |
| Area 26 | Kyuquot Sound | 1980 | -conservation; concern by Fishery Officers for low stock abundance |

[a] For area boundaries see Appendix 3.
[b] See Figures 1 and 2 for area location.

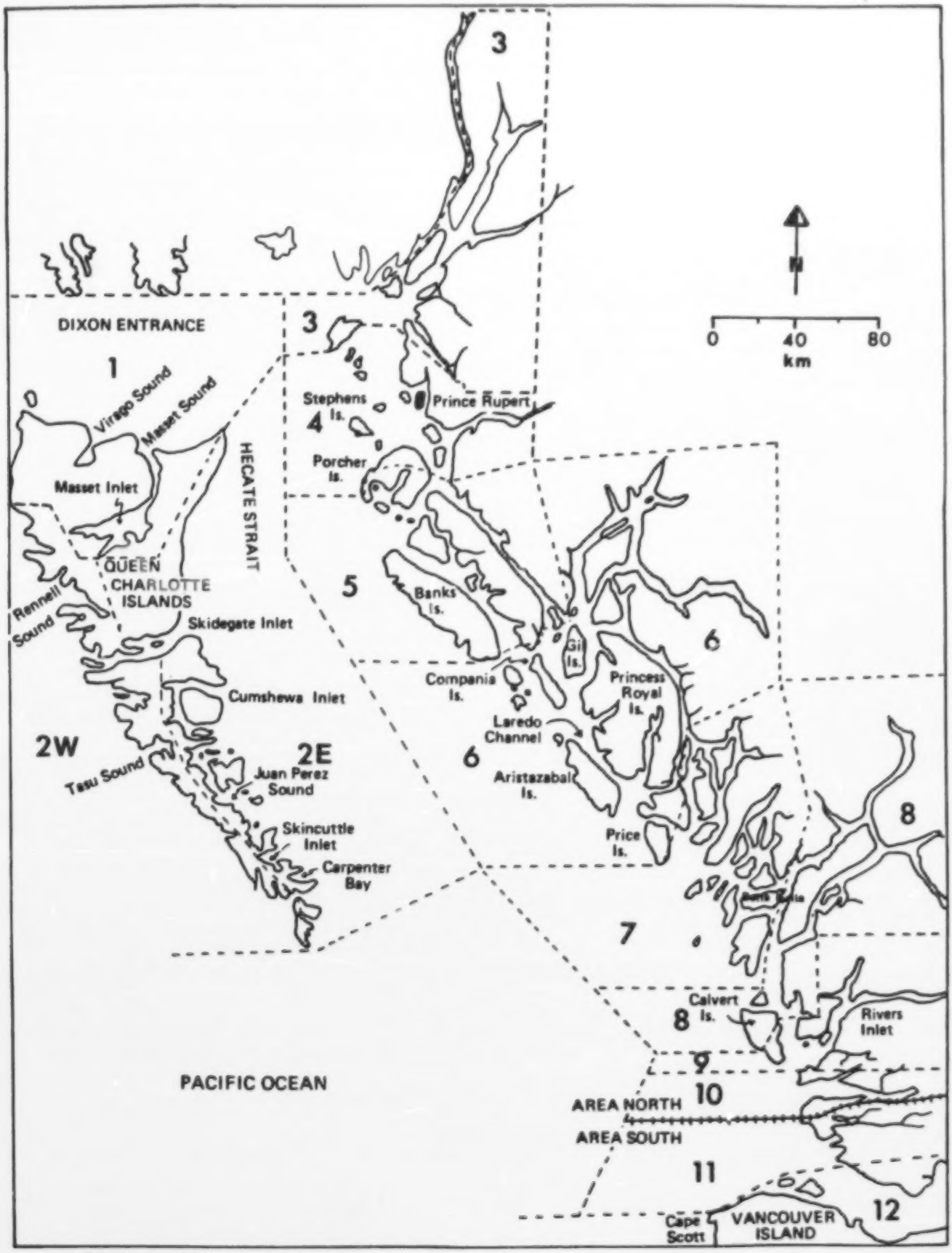


Fig. 1. Location of Statistical Areas in northern B.C.

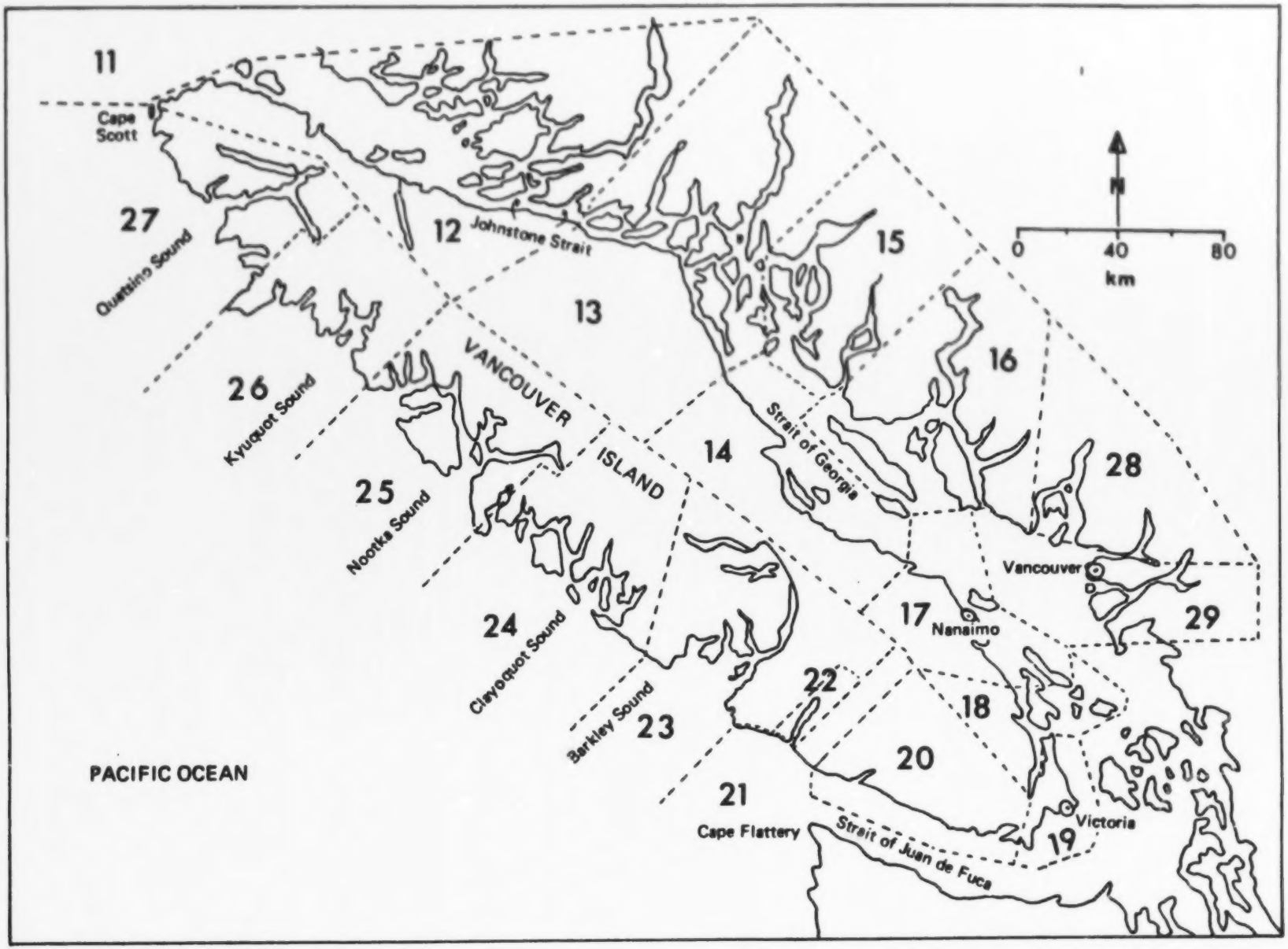


Fig. 2. Location of Statistical Areas in southern B.C.

Table 2. Total annual landings of abalone in B.C., 1952-1983.

| Year | Landings (kg) | Landings (lb) |
|---|---|---|
| 1952 | 5,398 | 11,900 |
| 1953 | 10,342 | 22,800 |
| 1954 | 6,849 | 15,100 |
| 1955 | 3,583 | 7,800 |
| 1956 | 499 | 1,100 |
| 1957 | 953 | 2,100 |
| 1958 | 5,307 | 11,700 |
| 1959 | 181 | 400 |
| 1960 | 1,542 | 3,400 |
| 1961 | 9,389 | 20,700 |
| 1962 | 17,463 | 38,700 |
| 1963 | 5,715 | 12,600 |
| 1964 | 57,062 | 125,800 |
| 1965 | 3,084 | 6,800 |
| 1966 | 726 | 1,600 |
| 1967 | 862 | 1,900 |
| 1968 | 91 | 200 |
| 1969 | 635 | 1,400 |
| 1970 | 16,239 | 35,800 |
| 1971 | 6,441 | 14,200 |
| 1972 | 59,602 | 131,400 |
| 1973 | 67,131 | 148,000 |
| 1974 | 26,308 | 58,000 |
| 1975 | 56,699 | 125,000 |
| 1976 | 273,061 | 602,000 |
| 1977 | 481,373 | 1,061,250 |
| 1978 | 404,212 | 891,138 |
| 1979 | 208,169 | 458,937 |
| 1980 | 107,619 | 237,260 |
| 1981 | 93,651 | 206,470 |
| 1982 | 86,462 | 190,610 |
| 1983 | 58,812 | 129,660 |
| Total | 2,071,128 | 4,566,058 |

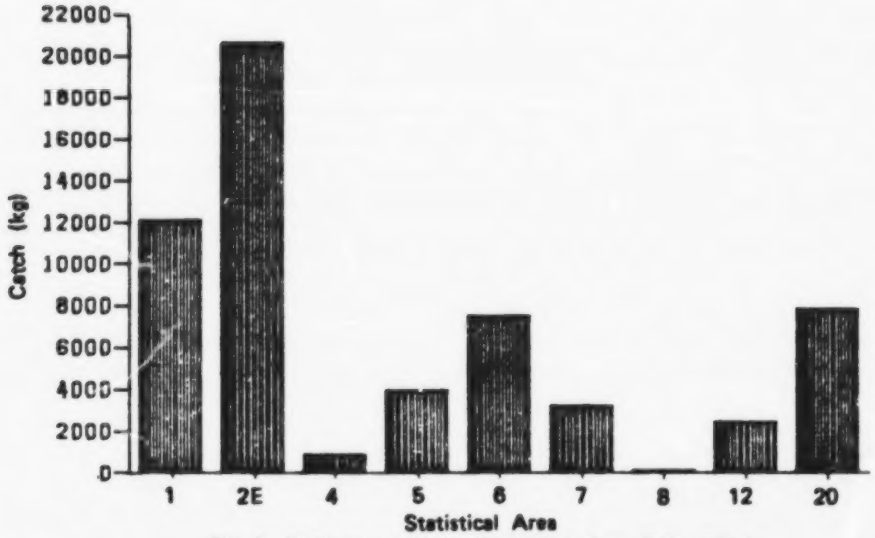


Fig. 3. Abalone catch by Statistical Area, B.C ., 1983.

Table 3. Abalone landings by Statistical Area, B.C., 1983.

| Area | Catch (kg) | % of Total |
|---|---|---|
| 1 | 12,113 | 20.6 |
| 2E | 20,643 | 35.1 |
| Queen Charlotte Islands Total | 32,756 | 55.7 |
| 4 | 875 | 1.5 |
| 5 | 3,970 | 6.8 |
| North Coast Total | 4,845 | 8.2 |
| 6 | 7,538 | 12.8 |
| 7 | 3,234 | 5.5 |
| 8 | 145 | 0.2 |
| Central Coast Total | 10,917 | 18.6 |
| 12 | 2,453 | 4.2 |
| 20 | 7,843 | 13.3 |
| South Coast Total | 10,296 | 17.5 |
| Total | 58,813 | 100.0 |

(21% of B.C. total) and Area 2E (35% of total, Table 3). The South Coast had an increase in Area 20 from 11% of B.C. total in 1982 to 13% in 1983 and showed a corresponding decline in Area 12 from 6% in 1982 to 4% in 1983.

Abalone landings by Statistical Area (Figs. 1 & 2, Table 3) are discussed below. Due to the confidentiality of logs, the harvest locations listed are given in general terms.

Area 1
This area supported 21% (12,113 kg) of the B.C. catch; catches were reported from Klashwun Point to Parry Passage.

Area 2E
This area supported the largest proportion (35% or 20,643 kg) of the total B.C. catch in 1983; catches were reported from Kunghit Island and north to Limestone Island. The reopening of parts of Area 2E accounted for a large proportion of this area's catch.

Area 4
A total of 875 kg or 1% of the B.C. catch were harvested from this area.

Area 5
Area 5 accounted for 7% (3,970 kg) of the B.C. catch. Catches were reported from Bonilla Island to the south end of Banks Island.

Area 6
This area supported landings of 7,538 kg (13% of total). Harvesting was reported from the Estevan Group, Artistazabal Island and Price Island.

Area 7
A catch of 3,234 kg or 5% of the B.C. catch was reported for this area with harvesting from the southern portion of Area 7.

Area 8
A small catch of 145 kg (0.2% of the B.C. catch) was harvested from the Calvert Island area.

Area 12
This area had a catch of 2,453 kg (4% of B.C. total); this was a reduction from the previous year's catch of 5,093 kg. Catches were reported from Hope Island to Malcolm Island.

Area 20
This area supported the major fishery in the South Coast with 7,843 kg harvested (13% of total). Landings were reported from Port San Juan to Pedder Bay.

Table 4. Range in abalone landings per licence holder, B.C., 1983.

| Landings range kg | (lb x 1000) | Number of licence holders | % of Licence holders[b] |
|---|---|---|---|
| 0 - 454 | (0-1) | 0 | 0 |
| 454 - 907 | (1-2) | 0 | 0 |
| 907 - 1,361 | (2-3) | 0 | 0 |
| 1,361 - 1,814 | (3-4) | 0 | 0 |
| 1,814 - 2,268 | (4-5) | 3 | 12 |
| 2,268 - 2,722 | (5-6) | 9 | 35 |
| 2,722 - 2,912 | (6.6.42)[a] | 10 | 38 |
| Total | | 22 | 85 |

[a] Maximum allowable catch which included glaze allowance on frozen abalone.

[b] % of licence holders = number of licence holders/26 licences.

In 1983, landings were reported for only 22 licences. By taking advantage of the glaze allowance, 10 licences (45% of total) reported landings between 2,722 kg and 2,912 kg, which was the maximum allowable catch on landings of frozen glazed abalone (Table 4). It is noteworthy that 4 licences (18% of total) did not report landings. It is also noteworthy that 1983 was the second year that the total allowable catch for the B.C. coast was not harvested.

Although 22 licences reported landings in 1983, only 16 vessels actually harvested abalone. This was due to the fact that four vessels fished two licences each and one vessel fished three licences; thus, 11 abalone quotas were harvested by five vessels.

## FISHING EFFORT BY AREA AND VESSEL

The annual abalone fishing effort for individual and combined Statistical Areas is shown for the period 1977 to 1983 in Table 5. The overall total number of diver days continued to decline from the peak level of 2,387 days in 1977, to 602 days in 1982 and 451 days in 1983 (Fig. 4). Also, the overall mean annual catch per unit effort (CPUE), defined as the kilograms of abalone landed per diver day, remained low since 1980, at 130 kg/diver day, compared to a high of 202 kg/diver day reported in 1977 (Fig. 4).

Table 5. Abalone fishing effort by Statistical Area, B.C., 1977-1983.

| Statistical Area | 1977 Total Diver Days | 1977 CPUE/ diver day(kg) | 1978 Total Diver Days | 1978 CPUE/ diver day(kg) | 1979 Total Diver Days | 1979 CPUE/ diver day(kg) | 1980 Total Diver Days | 1980 CPUE/ diver day(kg) | 1981 Total Diver Days | 1981 CPUE/ diver day(kg) | 1982 Total Diver Days | 1982 CPUE/ diver day(kg) | 1983 Total Diver Days | 1983 CPUE/ diver day(kg) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 211 | 215.5 | 59 | 217.8 | 20 | 130.7 | 21 | 152.2 | 5 | 384.6 | 48 | 271.3 | 62 | 195.4 |
| 2W | 75 | 180.8 | 80 | 182.5 | 63 | 162.0 | 21 | 177.4 | 5 | 384.6 | 1 | 161.0 | - | - |
| 2E | 1,111 | 233.6 | 547 | 185.1 | 134 | 185.6 | 48 | 261.2 | 126 | 169.2 | 116 | 116.7 | 119 | 173.5 |
| 3 | 51 | 199.6 | 5 | 50.7 | - | - | 14 | 153.1 | - | - | 13 | 128.2 | - | - |
| 4 | - | - | 30 | 212.9 | 40 | 73.2 | 16 | 168.2 | 47 | 110.3 | 14 | 98.8 | 13 | 67.3 |
| 5 | 470 | 199.6 | 506 | 174.6 | 347 | 116.6 | 104 | 108.7 | 28 | 102.1 | 33 | 66.7 | 35 | 113.4 |
| 6 | 251 | 131.6 | 761 | 210.7 | 449 | 197.3 | 381 | 129.0 | 264 | 143.0 | 186 | 145.5 | 70 | 107.7 |
| 7 | 51 | 109.8 | 101 | 108.1 | 86 | 134.1 | 32+[b] | 133.7 | 24 | 74.1 | 5 | 179.6 | 31 | 104.3 |
| 8 | - | - | - | - | - | - | 2 | 122.5 | - | - | - | - | 4 | 36.3 |
| 9 | - | - | - | - | - | - | 6 | 49.9 | 3 | 184.3 | - | - | - | - |
| 10 | - | - | - | - | - | - | - | - | - | - | 11 | 102.1 | - | - |
| 11 | 11 | 78.3 | - | - | 42 | 132.1 | 6 | 106.3 | 3 | 184.3 | 19 | 186.4 | - | - |
| 12 | 95 | 89.9 | 6 | 76.4 | 126 | 137.4 | 130+[b] | 106.8 | 92 | 104.3 | 58 | 87.8 | 26 | 94.3 |
| 19 | - | - | 10 | 91.2 | 17 | 82.8 | 7 | 149.6 | - | - | - | - | - | - |
| 20 | 16 | 89.4 | 23 | 91.9 | 4 | 70.3 | 12 | 79.7 | 63 | 76.3 | 71 | 121.2 | 91 | 86.2 |
| 23 | - | - | - | - | - | - | - | - | - | - | 7 | 142.9 | - | - |
| 24 | 4 | 44.9 | - | - | - | - | - | - | - | - | 1 | 17.5 | - | - |
| 25 | 16 | 284.6 | 34 | 168.1 | 4 | 110.1 | - | - | - | - | - | - | - | - |
| 26 | 14 | 166.6 | - | - | 3 | 69.6 | - | - | - | - | - | - | - | - |
| 27 | 11 | 214.6 | - | - | 13 | 135.1 | - | - | - | - | 19 | 150.8 | - | - |
| Total | 2,387 | | 2,162 | | 1,348 | | 800+10.5 | | 702 | | 602 | | 451 | |
| Mean[a] | | 201.7 | | 187.0 | | 154.4 | | 132.8[b] | | 133.4 | | 136.5 | | 130.4 |

[a] Total catch / Area / Total diver days.
[b] 1,389 kg of unknown fishing effort; CPUE based on remaining catch.

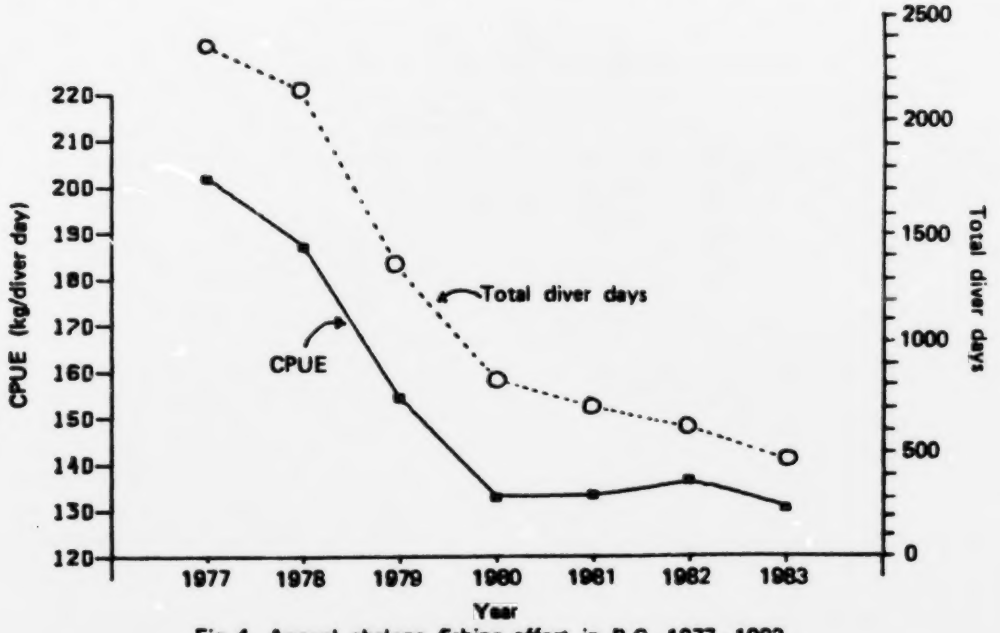


Fig. 4. Annual abalone fishing effort in B.C., 1977 - 1983.

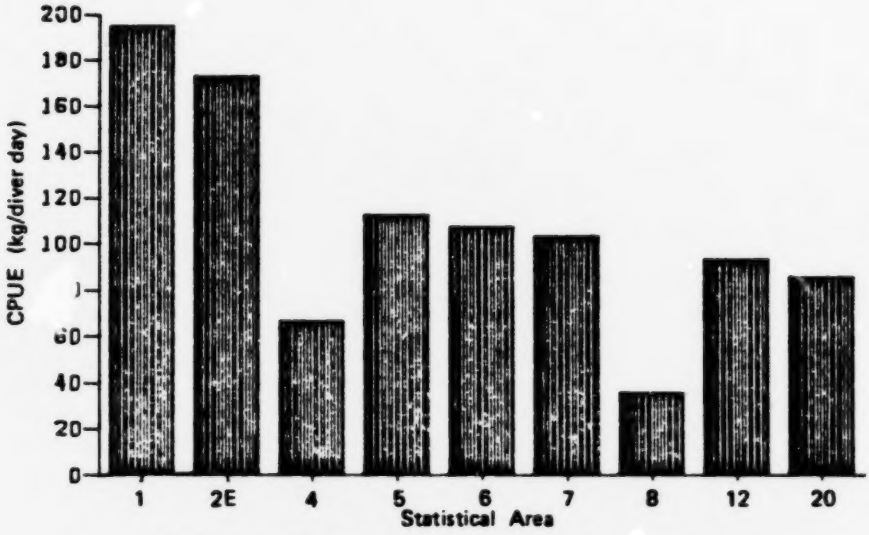


Fig. 5. Abalone fishing effort by Statistical Area, B.C., 1983.

As in previous years, the mean CPUE observed in 1983 varied substantially among areas (range 36-195 kg/diver day; Fig. 5, Table 5). Also, the annual trends in fishing effort were specific to each area. This was evident when comparing the 1982 and 1983 fishing efforts in major harvest areas in 1983. Area 1 showed a continued increase in total diver days, from 48 days in 1982 to 62 days in 1983, and a drop in CPUE from 271 kg/diver day in 1982 to 195 kg/diver day in 1983. Area 2E showed unchanged effort in total diver days and a noticeable increase in CPUE from 117 kg/diver day in 1982 to 174 kg/diver day in 1983; much of this increase could be accounted for in the newly opened areas. Area 6, which was a consistently strong harvest area, showed a marked drop in 1983 in both total diver days (from 186 to 70 days) and CPUE (from 146 to 108 kg/diver day). Area 20 also showed a decline in CPUE in 1983 (from 121 to 86 kg/diver day); this was accompanied by an increase in total diver days (from 71 to 91 days).

Abalone fishing effort by vessel is shown in Table 6. Mean CPUE varied considerably among vessels (range 73-324 kg/diver day per vessel). This is similar to the ranges recorded in previous years (Table 6).

Abalone fishing effort by diver is shown in Table 7. The CPUE varied greatly among divers (range 34-634 kg/diver day).

Table 6. Mean annual abalone catch per vessel and fishing effort (No. diver days and catch/diver day), B.C., 1977-1983.

| Year | | No. vessels fishing | Total catch (kg) | Mean catch per vessel[a] (kg) | No. diver days | | | Catch/diver day (kg) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Total | Mean per vessel[b] | Range per vessel | Overall mean[c] | Range per Statistical Area | Range per vessel |
| 1977 | | 22 | 481,373 | 21,881 | 2,387 | 109 | 3-327 | 202 | 45-285 | 72-340 |
| 1978 | | 25 | 404,212 | 16,168 | 2,162 | 86 | 8-204 | 187 | 51-218 | 49-354 |
| 1979 | open | 21 | 108,664 | 5,174 | 653 | 31 | 8- 54 | 166 | - | 49-585 |
| | quota | 24 | 99,505 | 4,146 | 695 | 29 | 16- 48 | 143 | - | 62-282 |
| | total | 25 | 208,169 | 8,327 | 1,348 | 54 | - | 154 | 70-197 | - |
| 1980 | | 25[d] | 107,619 | 4,305 | 811 | 32 | 13- 73 | 133 | 50-261 | 70-349 |
| 1981 | | 24[e] | 93,651 | 3,902 | 702 | 29 | 12- 58 | 133 | 74-385 | 67-325 |
| 1982 | | 22[f] | 82,164 | 3,735 | 602 | 27 | 10- 78 | 136 | 18-271 | 58-301 |
| 1983 | | 22 | 58,813 | 2,671 | 451 | 21 | 10- 55 | 130 | 36-195 | 73-324 |

[a] Total catch/Total vessels.
[b] Total diver days/Total vessels.
[c] Total catch/Total diver days.
[d] One additional licenced vessel burned.
[e] Two licences were transferred to other licenced vessels.
[f] Four licences were transferred to other vessels.

Table 7. Mean annual abalone catch per diver and fishing effort (No. diver days and catch/diver day), B.C., 1977-1983.

| Year | No. divers fishing | Total catch (kg) | Mean catch per diver[a] (kg) | No. diver days | | | Catch/diver day (kg) | |
|---|---|---|---|---|---|---|---|---|
| | | | | Total | Mean per diver[b] | Range per diver | Overall mean[c] | Range per diver |
| 1977 | 56 | 481,373 | 8,596 | 2,389 | 43 | 1-100 | 202 | 32-763 |
| 1978 | 78 | 404,212 | 5,182 | 2,162 | 28 | 1- 69 | 187 | 5-385 |
| 1979 | 59 | 208,169 | 3,528 | 1,348 | 23 | 1- 67 | 154 | 23-278 |
| 1980 | 33 | 107,619 | 3,261 | 810.5 | 25 | 6- 58 | 133 | 40-349 |
| 1981 | 32 | 93,651 | 2,957 | 702 | 22 | 1- 52 | 133 | 35-287 |
| 1982 | 28 | 82,164 | 2,934 | 602 | 22 | 2- 54 | 136 | 28-301 |
| 1983 | 28 | 58,813 | 2,100 | 451 | 16 | 1- 55 | 130 | 34-634 |

[a] Total catch/Total divers.
[b] Total diver days/Total divers.
[c] Total catch/Total diver days.

## ACKNOWLEDGEMENTS

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Appendix 1: Harvest log submitted by commercial abalone diver, B.C., 1983 .

Operator:_____
Licence No._____
Vessel:_____

Return to: Dept. of Fisheries and Oceans
202-417 2nd Avenue West
Prince Rupert, B.C.
V8J 1G8

MONTHLY ABALONE REPORT SHEET

| Date | Stat. Area | Harvesting Location | Diver_____ Diver Hrs. lbs. harvested | Diver_____ Diver Hrs. lbs. harvested | Diver_____ Diver hrs. lbs. harvested | Total Catch |
|---|---|---|---|---|---|---|
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

NOTES: (i) Report sheets must be submitted on approximately a monthly basis, but can be submitted to coincide with trips.
(ii) Sketch maps must accompany reports showing exact locations harvested.
(iii) Reports will be confidential.

Appendix 2. Guidelines for the 1983 B.C. abalone fishery.

1. Licencing requirements

. Limited entry will continue for this fishery.

. Licence holders must designate, upon application, the vessel to which the licence is to be designated.

. Application to redesignate a vessel must be made in writing on an approved form.

. Requests for redesignation of vessels, once the licence has been issued, will not be approved except when the originally designated vessel is out of service.

. Completed 1983 licence renewal application, signed by the licence holder, must be submitted to Vancouver Licence Section accompanied by $200. licence fee, and validation tabs must be displayed on the designated vessel prior to commencement fo harvesting.

** . A maximum of 4 licences with quotas not exceeding 15% of the Total Allowable Catch, whichever is less, may be assigned to the same vessel.

. Operators must carry a validation form on the vessel while fishing.

. Validation forms must be produced as requested by a Fisheries Officer for validation following each unloading of the catch.

** . Entitlement to fish for groundfish & shellfish is no longer inherent in the Abalone licence. A 'C' category licence must be assigned to and 'C' validation tabs issued in respect of the vessel to fish for 'C' category species.

2. Licence Renewal

. Eligibility for licence renewal for 1983 is not dependant upon a minimum abalone catch having been recorded for 1982.

3. 1983 Abalone Season and Vessels Quotas

. The 1983 abalone fishery will begin on January 15, 1983 and close on December 15, 1983.

. The Total Allowable Catch of 156,000 pounds will be divided equally among the licence holders.

. A quota of 6,000 pounds will be assigned to each licence.

. There will be no restrictions on the number of divers in this fishery.

4. Glaze Allowance

. In 1983, a fixed glaze allowance of 7% will be applied on all frozen glazed abalone loads.

. For each load of frozen glazed abalone, licence holders will be permitted to deduct 7% of this weight to arrive at an actual or recorded weight.

. This information should be specified on the validation form and on the abalone log sheets.

Appendix 2 (cont'd).

5. Operations procedures in the 1983 fishery

a) Each abalone licence holder is requested to inform the appropriate District office prior to fishing in the area. If no answer, then contact the Operations Room in Vancouver at: 666-2185.

| District (areas included) | Telephone |
|---|---|
| Queen Charlotte City (1,2) | 559-4413 |
| Prince Rupert (3,4,5) | 624-9137 |
| Kitimat (6,7,8,9,10) | 632-4884 |
| Port Alberni (21-27) | 724-0195 |
| Campbell River (11,12,13) | 287-2102 |
| Victoria (20) | 388-3252 |

b) Licence holder must carry a validation form, provided by the Department of Fisheries and Oceans, on the vessel while fishing. The validation form must be validated by a Fishery Officer following unloading of catch.

c) Log sheets, accompanied by maps showing exact locations of abalone harvested, must be kept on a daily basis and be available upon request by a Fishery Officer. These logs and maps must be submitted to the Prince Rupert Fishery Office (202 - 417 2nd Avenue West, V8J 1G8) on a monthly basis or to coincide with each trip.

d) Sales slips must be submitted for all abalone harvested.

Appendix 3 Abalone Licence and Conditions.

LICENCE TO HARVEST ABALONE IN CANADIAN FISHERIES WATERS IN THE PACIFIC OCEAN FOR THE 1983 SEASON

In accordance with the Pacific Shellfish Regulations and the Pacific Fishery Regristration & Licencing Regulations

VESSEL QUOTA FISHERY For the period January 15, 1983 to December 15, 1983

This Licence is issued to _____

and authorizes the following designated vessel to fish for, take, catch, or kill abalone for commercial purposes in the amount of 6000 pounds.

| C.F.V. | M.O.T. |
|---|---|
| Vessel Name | |

Date of Issue:_____

Signature of Licence Holder:_____

Signature of Issuing Officer:_____

CONDITIONS

1. Pursuant to Section 48 of the Fisheries Act
   a) Vessel operators must keep a daily diver log and submit the log and maps on a monthly basis or to coincide with each trip. Logs must be submitted to Kevin Bates, 417 2nd Avenue West, Prince Rupert, B.C., V8J 1G8.
   b) Log books shall be produced for examination on the demand of a Fishery Officer or Fishery Guardian.

2. The vessel operators must carry a validation form on the vessel while fishing. The validation form must be validated by a Fishery Officer or a fish inspection officer following unloading of catch.

3. This licence is issued under the authority of the Minister of Fisheries, and is non transferable. Abalone licence tabs must be affixed to the C.F.V. plates of the designated vessel while it is engaged in abalone harvesting activity.

4. The abalone fishery will commence on January 15, 1983 and terminate on December 15, 1983.

5. The following Areas and locations are CLOSED to commercial fishing for Abalone in 1983.

Commercial harvesting for this fishery is permitted only outside the listed areas/locations:

Appendix 3 (cont'd).

## Areas 1, 2E and 2W

1) The waters of Juan Perez Sound and adjacent waters inside a straight line from Werner Point on Moresby Island to Ramsay Point on Ramsay Island, thence along the northerly shoreline of Ramsay Island to Anderew Point, thence in a straight line to Tuft Island, thence in a straight line to Fuller Point on Lyell Island, thence along the southerly shoreline of Lyell Island to Richardson Point, thence in a straight line to Darwin Point on Moresby Island and thence south along the shoreline of Moresby Island to the point of commencement (Werner Point).

2) The waters of Rennell Sound inside a straight line from Cone Head to Clonard Point.

3) The waters of Skidegate Channel and adjacent areas (Dawson Inlet, Dawson Harbour, Trounce Inlet), inside a straight line from Ellis Point on Graham Island to Teenakun Point on Chaatl Island, thence easterly along the northern shoreline of Chaatl Island to Exact Point, thence in a straight line to Demariscous Point on Moresby Island, thence easterly along the north shoreline of Moresby Island to McLellan Point (East Narrows), thence in a straight line true north to Graham Island, thence along the south shoreline of Graham Island to the point of commencement (Ellis Point).

4) The waters of Tasu Sound and adjacent areas inside a straight line from Davidson Point to Tasu Sound.

5) The waters of Masset Inlet, Masset Sound and McIntyre Bay inside a straight line from Wiah Point to Skonun Point.

6) The waters of Cumshewa Inlet inside a line from Cumshewa Head to Skedans Point, and including waters of Carmichael Passage and Selwyn Inlet bounded on the south by a line from Selwyn Point Light on Moresby Island to a boundary sign opposite on Talunkwan Island, and on the east by a line from Nelson Point to Louise Island to Heming Head on Talunkwan Island.

7) The waters of Virago Sound inside a straight line true north from Inskip Point to point of interception with a straight line from Cape Naden to Cape Edenshaw hence westerly along the line between Cape Naden and Cape Edenshaw to Cape Naden.

## Area 4

1) All waters inside a line commencing at Hunt Point on Porcher Island, thence in a straight line to the most easterly point of Lucy Island, thence in a straight line to Triple Island, thence in a straight line to Butterworth Rocks, thence in a straight line to Seal Rocks, thence in a straight line to Welcome Point on Porcher Island, thence along the north-westerly shore of Porcher Island to Hunt Point on Porcher Island.

Appendix 3 (cont'd).

Area 5

1) Those waters inside a line commencing at a white fishing boundary sign on Cape George on Porcher Island and following a southern shore of Porcher Island to Sparrowhawk Point, thence in a direction approximately 155 degrees true to the northwest corner of McCauley Island, thence following the northwest shore of McCauley Island to the light on Keswar Point, thence in a straight line in a direction approximately due south to an orange fishing boundary sign to the southeast of the entrance to Keyarko Cove on Banks Island, thence following the easterly and northerly shores of Banks Island to the light at the entrance to Larsen Harbour, thence in a straight line true south to Banks Island, thence following the westerly shoreline of Banks Island to Kelp Point, thence in a straight line true west to the surfline, thence following the surfline northerly to Bonilla Island light, thence following the surfline northerly to a point bearing Cape George true east, thence in a straight line true east to Cape George.

Area 6

1) Inside a line commencing at Blackfly Point on Gil Island, thence following the westerly side of Gil Island to Fawcett Point, thence in a straight line to Dogan Point on Campania Island, thence following the easterly shore of Campania Island to the southerly extremity of Campania Island, thence in a straight line to Oswald Point on Rennison Island to the eastern extremity of Rennison Island, thence in a straight line to Ulrich Point on Aristazabal Island, thence along the easterly shore of Aristazabal Island to Lombard Point, thence in a straight line projected easterly to a white fising boundary sign placed on the northwesterly shore of Price Island, thence along the westerly and northerly shores of Price Island to a white fishing boundary sign marking the boundary between Salmon Purse Seine Area Six and Salmon Purse Seine Area Seven, thence along the Salmon Purse Seine Six-Salmon Purse Seine Area Seven boundary to Split Head on Swindle Island, thence in a straight line to Errigal Point on Princess Royal Island, thence along the southerly shore of Princess Royal to Hartnell Point, thence in a straight line to the most southerly extremity of Hastings Island, thence along the easterly shore of Hastings Island to Hilbert Point, thence in a straight line across Laredo Inlet to Waser Point on Princess Royal Island, thence following sinuosities of the easterly shore of Princess Royal Island to Nelly Point, thence in a straight line to Maple Point of Gil Island, thence along the northerly shore of Gil Island to Blackfly Point, the point of origin.

Appendix 3 (cont'd).

## Area 7

1) Bounded on the north by a straight line true east from Jorkins Point on Swindle Island to Dowager Point opposite, and bounded on the south by a line true west from Keith Point on Dowager Island to Price Island opposite.

2) Bounded on the west from Promise Point on Cecilia Island along the westerly shore of Cecilia Island to Rankin Point, thence by a straight line to Providence Rock near Cape Mark; and bounded on the south by a straight line to the most northerly point on Limit Island, thence by a straight line to Fingal Point of Princess Alice Island; and bounded on the east by a straight line to Bush Point on Don Peninsula; and bounded on the north from Bush Point on Don Peninsula along the southwesterly shore of Don Peninsula to Schubert Point, thence by a straight line to Promise Point on Cecilia Island opposite.

## Area 8

1) Bounded on the north from Bayly Point on Nalu Island along the southeasterly shore of the most southerly point of Stirlig Island, thence by a line true west to the surfline; bounded on the east by a straight line from Bayley Point on Nalu Island to Kelpie Point on Hecate Island, thence along the easterly shore of Hecate Island to Experiment Point, thence by a straight line to Wedgborough Point on Calvert Island; bounded on the south from Wedgborough Point on Calvert Island to a point due south of Surf Island, thence by a straight line to Surf Island, thence by a line true west to the surfline.

## Southern B.C.

1) All waters of Johnstone Straight, Strait of Georgia, Strait of Juan de Fuca, or any bay, inlet or other tidal water tributary thereto in the area bounded on the north by a line drawn from Neville Point to the westerly entrance of Port Neville Inlet to Hickey Point Light on Vancouver Island and bounded on the south by a line drawn from Williams Head through Race Rocks due south magnetic to the International Boundary.

2) All of Salmon Purse Seine Areas 21, 22, 23, 24 and 26.

Appendix 4a. Annual abalone landings (kg) by Statistical Area 1-10, northern B.C., 1952-1983.[a]

| YEAR | Statistical Area | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1 | 2W | 2E | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 1952 | -[b] | - | - | - | - | - | - | - | - | - | - |
| 1953 | - | - | - | - | - | - | - | - | - | - | - |
| 1954 | - | - | - | - | - | - | - | - | - | - | - |
| 1955 | - | - | - | - | - | - | - | - | - | - | - |
| 1956 | - | - | - | - | - | - | - | - | - | - | - |
| 1957 | - | - | - | - | (+ 91 kg. from unknown Area) | | | - | - | - | - |
| 1958 | - | - | - | - | - | - | - | - | - | - | - |
| 1959 | - | - | - | - | - | 181 | - | - | - | - | - |
| 1960 | - | - | - | - | - | 1,497 | - | - | - | - | - |
| 1961 | 227 | - | - | - | 2,132 | 363 | 3,357 | - | - | - | - |
| 1962 | 862 | 1,860 | 6,486 | - | 3,901 | 4,309 | - | - | - | - | - |
| 1963 | 998 | - | 408 | - | 1,134 | 1,179 | - | - | - | - | - |
| 1964 | 4,672 | 2,540 | 12,655 | - | - | - | 6,845 | 318 | - | - | - |
| 1965 | - | - | 1,588 | - | - | - | - | - | - | - | - |
| 1966 | - | - | - | - | - | - | - | - | - | - | - |
| 1967 | - | - | - | - | 45 | - | - | - | - | - | - |
| 1968 | - | - | - | - | - | - | - | - | - | - | - |
| 1969 | - | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | 45 | - | 5,307 | - | - | - |
| 1971 | - | - | - | - | - | - | - | - | - | - | - |
| 1972 | - | - | - | - | - | - | - | - | - | - | - |
| 1973 | - | 1,814 | 5,443 | - | 4,082 | 16,783 | 454 | - | - | - | - |
| 1974 | - | - | - | - | - | 5,897 | 6,350 | - | - | - | - |
| 1975 | - | - | 2,268 | - | 2,268 | 9,525 | 16,329 | 14,061 | - | 2228 | - |
| 1976 | 4,536 | - | 112,037 | - | 4,989 | 88,450 | 37,194 | 1,814 | - | 907 | - |
| 1977 | 45,476 | 13,563 | 259,463 | 10,185 | - | 93,796 | 33,027 | 5,601 | - | - | - |
| 1978 | 12,847 | 14,602 | 101,257 | 254 | 6,388 | 88,358 | 160,380 | 10,922 | - | - | - |
| 1979 | 2,613 | 10,208 | 24,874 | - | 2,927 | 40,476 | 88,582 | 11,533 | - | - | - |
| 1980 | 3,196 | 3,724 | 12,537 | 2,143 | 2,692 | 11,309 | 49,160 | 5,166 | 245 | 299 | - |
| 1981 | 1,923 | 6,047 | 21,321 | - | 5,186 | 2,860 | 37,755 | 1,778 | - | 553 | - |
| 1982 | 13,024 | 161 | 13,538 | 1,667 | 1,383 | 2,201 | 27,058 | 898 | - | - | 1,124 |
| 1983 | 12,113 | - | 20,643 | - | 875 | 3,970 | 7,538 | 3,234 | 145 | - | - |

[a] From sales slip records (1952-1977); from log-book records (1978-1981).
[b] No landings recorded.

Appendix 4b. Annual abalone landings (kg) by Statistical Area 11-27, southern B.C., 1952-1983.[a]

| YEAR | Statistical Area | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 11 | 12 | 13 | 15 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 1952 | -[b] | 5,398 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1953 | - | 10,342 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1954 | - | 6,849 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1955 | - | 3,538 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1956 | - | 499 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1957 | - | 862 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1958 | - | 5,216 | - | - | 91 | - | - | - | - | - | - | - | - | - | - |
| 1959 | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1960 | - | - | 45 | - | - | - | - | - | - | - | - | - | - | - | - |
| 1961 | - | - | - | - | - | - | - | - | - | - | - | 3,311 | - | - | - |
| 1962 | - | 45 | - | - | - | - | - | - | - | - | - | <227 | - | - | - |
| 1963 | - | 1,996 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1964 | - | 26,580 | 590 | 862 | - | - | - | - | - | - | - | - | - | - | - |
| 1965 | - | 1,497 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1966 | - | 726 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1967 | - | 816 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1968 | - | 91 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1969 | - | 227 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 1970 | - | - | - | - | - | 1,588 | 1,134 | 1,769 | - | 680 | 4,899 | 816 | - | - | - |
| 1971 | - | <227 | - | - | - | - | - | - | - | 272 | 6,169 | - | - | - | - |
| 1972 | - | 6,577 | 45 | - | 3,311 | 3,175 | 953 | 408 | - | - | 40,007 | - | 5,080 | 45 | - |
| 1973 | - | - | - | - | - | 1,814 | 1,361 | 5,897 | - | <227 | 8,618 | 20,865 | - | - | - |
| 1974 | - | 2,268 | - | - | - | - | <227 | 7,257 | <227 | - | 1,814 | 2,268 | 454 | - | - |
| 1975 | - | 3,175 | - | - | - | - | - | 3,629 | - | - | 907 | - | <227 | 3,629 | 907 |
| 1976 | - | 5,443 | - | - | <227 | - | 1,361 | 9,525 | <227 | - | 1,361 | 2,268 | <227 | - | 3,175 |
| 1977 | 861 | 8,545 | - | - | - | - | - | 1,430 | - | - | - | 180 | 4,554 | 2,332 | 2,361 |
| 1978 | - | 459 | - | - | - | - | 912 | 2,115 | - | - | - | - | 5,718 | - | - |
| 1979 | 5,548 | 17,312 | - | - | - | - | 1,408 | 281 | - | - | - | - | 440 | 209 | 1,756 |
| 1980 | 638 | 14,504 | - | - | - | - | 1,047 | 957 | - | - | - | - | - | - | - |
| 1981 | 1,828 | 9,595 | - | - | - | - | - | 4,805 | - | - | - | - | - | - | - |
| 1982 | 7,807 | 5,093 | - | - | - | - | - | 8,603 | - | - | 1,000 | 39 | - | - | 2,866 |
| 1983 | - | 2,453 | - | - | - | - | - | 7,843 | - | - | - | - | | | |

[a,b] As for Appendix 4a.